



Solving the System Overload

The TrAIL and PATH Project

This backbone upgrade will bolster the regional transmission system's capacity to transport electricity from where it is generated to homes and businesses where it is consumed—often hundreds of miles away.

BY JIM HANEY **ECONOMIC GROWTH** and a comfortable lifestyle hinge on our ability to access reliable and affordable electricity. Few manufacturers, service providers or retailers could operate without an uninterrupted supply of reliable power, and modern homes boast double the square footage of homes typical of the 50s and 60s, requiring more energy to heat and cool. Computers, flat-screen TVs, cell-phone chargers and power-hungry electronics of every description crowd our electrical outlets.

Electricity powers life. It's that simple.

Large-scale retail and commercial development coupled with increased individual power consumption have pushed our regional transmission grid to its limits, though. Throughout West Virginia, as well as the surrounding Mid-Atlantic region, the demand for electricity has increased dramatically while growth of transmission infrastructure has lagged behind. This results in greater reliability risks for consumers.

Leading energy experts from the U.S. Department of Energy, the North American Electric Reliability Corporation and PJM Interconnection, the regional grid operator for a 13-state area including West Virginia, advise the regional infrastructure must be upgraded now.

That's why an Allegheny Energy subsidiary is building the 500-kilovolt Trans-Allegheny Interstate Line, which many West Virginians recognize as "TrAIL." This backbone upgrade will bolster the regional transmission system's capacity to transport electricity from where it is generated to homes and businesses where it is consumed—often hundreds of miles away.

TrAIL has a simple yet vital mission: ensure the lights stay on for years to come. The line's sole purpose is to improve the reliability of the existing transmission grid.

"Electricity is integral to everything we do," says Paul Evanson, chairman, president and chief executive officer of Allegheny Energy. "It is essential to our daily life. We all take the miracle of electricity for granted. Transmission is an essential element for the delivery of that miracle."

When complete, TrAIL and the companion segment being built by Dominion Virginia Power will span more than 200 miles, extending from southwestern Pennsylvania across West Virginia to Loudoun County, Virginia. Allegheny Energy subsidiary Trans-Allegheny Interstate Line Company (TrAILCo) is constructing the line to an interconnection point with Dominion near Middletown, VA. Dominion is building the final leg to its Loudoun Substation. TrAILCo's portion of the project represents an \$820 million investment.

ExEdge

In 1882, electricity generation was with direct current, which required different voltages, and so used different generators and circuits.

Source: http://en.wikipedia.org/wiki/Electric_power_transmission



Two new steel H-frame transmission structures with a weathered finish stand between the pair of existing transmission lines. The NedPower wind farm, a joint venture of Dominion and Shell WindEnergy, Inc., is visible on the ridge.

Breaking New Ground

Allegheny Energy has long enjoyed a rich tradition in Fairmont, West Virginia, its community roots tracing back more than a century to when the Fairmont Electric Light & Power Company was incorporated. Now with its new Transmission Operations Headquarters taking shape in the I-79 Technology Park, Allegheny's presence should stretch for generations to come.

The state-of-the-art facility will serve as the command center for Allegheny's multi-state transmission functions, transmission planning, engineering, maintenance and construction operations. Employees will also be able to perform round-the-clock management of the transmission grid from the facility.

The transmission system provides the vital link between where electricity is generated and the homes and businesses where it is used. The safe transmission of reliable power to its customers is a responsibility Allegheny takes very seriously.

The transmission operations headquarters will house about 150 managerial, professional, technical and administrative employees. These are new, high-wage jobs for the Fairmont area, with annual payroll and benefits associated with this facility expected to reach about \$12 million.

"This building is an important milestone in the development of our transmission business," says Paul J. Evanson, chairman, president and chief executive officer of Allegheny Energy. "With our new projects, along with more than 4,600 miles of transmission lines already in place, we need a facility that is specifically designed to meet the needs of our transmission business."

Allegheny broke ground for the new \$50 million transmission facility in April. Site preparation and foundation work for the new Fairmont building is underway, and completion is anticipated for mid-2011. The building will total about 148,000 square feet and will contain a transmission operations control center, a data center and approximately 85,000 square feet of Class A office space.

Allegheny selected the I-79 High Technology Park as the location for its transmission headquarters because of its central location and superior infrastructure.

As a demonstration of the company's environmental commitment, the building will be certified under the Leadership in Energy and Environmental Design (LEED) Green Building Rating System. The LEED system provides standards for environmentally sustainable construction.

Omni Associates of Fairmont is the architectural and engineering firm for the environmentally friendly building, and March-Westin, Inc. of Morgantown is the general contractor.

The facility will solidify the company's already-strong presence in Marion County. Allegheny's local operations include the Customer Service Center, White Hall Service Center and the power station at Rivesville. More than 450 employees currently work at these locations.

Elsewhere in the state, Allegheny employs 1,750 West Virginians at 24 service centers and six power stations.

"Allegheny is proud to make this new investment in Marion County," Evanson says. "We're very pleased to be part of the region's ongoing revitalization and are looking forward to contributing to a bright future for the area."

Allegheny Energy and West Virginia are uniquely situated geographically and otherwise to supply the heavily populated Mid-Atlantic Region with reliable electricity.

"Because of its abundance of natural resources, West Virginia has always played a pivotal role in providing energy for America with its coal and natural gas reserves," Evanson says. "Those natural resources have led to the location of power plants across the state, including six Allegheny Energy stations."

TrAIL will also benefit the West Virginia economy over the long term by expanding markets for local coal and allowing for potential new generation projects, including clean-coal technologies and renewable sources such as wind.

The need for a reliable supply of electricity for business and industry cannot be overstated. The system-wide failure of the Northeast's grid in 2003 occurred in a matter of moments, resulting in a blackout that left more than 50 million people in the dark and cost the U.S. economy billions of dollars.

West Virginians for Reliable Power, a diverse group of West Virginia businesses, trade associations and labor representatives, works hard to educate citizens on the urgent need to improve the electric transmission infrastructure. See what the coalition is saying at www.ForReliablePower.org.

Help is on the Way

The transmission lines currently in place across the mountains run at capacity nearly all the time and are close to being overloaded. Without TrAIL to ease the strain, experts warn the region could experience crippling blackouts by 2011.

Fortunately, TrAIL is on track to be finished and operating by June 2011. After an exhaustive review that included numerous public input and evidentiary hearings, the Public Service Commission of West Virginia and regulatory commissions in Pennsylvania and Virginia last year authorized construction of the line.

TrAILCo has negotiated with hundreds of property owners, purchasing easements for about 80 percent of the right-of-way needed to build the line. The remaining easements should be secured in coming months.

Construction preparation began in late 2008 with site grading of the new 502 Junction Substation in Greene County, Pennsylvania at the line's starting point, about a mile north of the West Virginia-Pennsylvania state line. At the same time, crews began a major expansion of the existing Meadow Brook Substation just south of Winchester, Virginia to accommodate TrAIL and its associated electrical equipment.

Work continues along segments of the line where TrAILCo has acquired right-of-way easements and secured the necessary federal, state and local permits. The initial phase of the project has focused on clearing right-of-way, building access roads and setting up material staging yards. Field workers are now pouring concrete foundations and erecting steel transmission towers.

With less than two years remaining to complete TrAIL and meet the June 2011 in-service date, the push is on. To date, more than 1,700 people have worked on some facet of the project, and hundreds more will be added to the payroll to finish the job.

The economic impact of the construction activity benefits communities along the line, where local businesses provide lodging, meals, supplies and services for field workers.

Allegheny Energy (AE) Transmission Line Projects

Trans-Allegheny Interstate Line (TrAIL)

Length: 215 miles
Route: Southwestern Pennsylvania through West Virginia to Northern Virginia
Voltage: 500,000 volts
Purpose: Enhance reliability of Mid-Atlantic electric grid
Service: June 2011
Status: Construction underway
Cost: AE portion-\$820 million

Potomac-Appalachian Transmission Highline (PATH)

Length: 275 miles (approximate)
Route: Charleston, WV to Frederick County, MD
Voltage: 765,000 volts
Purpose: Enhance reliability of Mid-Atlantic electric grid
Service: June 2014
Status: Filed application with regulators May 2009 to start review process
Cost: AE/AEP joint venture. AE-\$1.2 billion; AEP-\$600 million

PATH of Greater Reliability

Even as TrAIL will relieve overloads on a number of transmission lines, a second proposed transmission line to cross West Virginia, the 765-kV Potomac-Appalachian Transmission Highline (PATH) is necessary to resolve a number of different concerns jeopardizing the integrity of the regional grid.

PJM's 2007 planning study identified PATH as the best alternative to resolve a number of reliability violations forecast for the Mid-Atlantic region by 2014.

Like TrAIL, PATH will enhance the ability to transfer power across the region. It will also create opportunities to upgrade existing transmission facilities to increase their capacity. The current system is so heavily loaded that it is not possible to take the lengthy outages necessary to re-conductor overburdened lines.

The \$1.8 billion PATH project is a joint venture of Allegheny Energy and American Electric Power. The proposed line will extend nearly 275 miles from the Amos substation in Putnam County, West Virginia to a new substation in Frederick County, Maryland.

"The PATH project is vital to the reliability of the electricity grid serving this region," says Michael Morris, AEP chairman, president and chief executive officer. "It is critical that we reinforce the transmission infrastructure to ensure we can continue to supply reliable electrical service 24 hours a day, 365 days a year."

In May, applications were filed with the West Virginia, Virginia and Maryland utility commissions to build PATH, initiating the year-long regulatory review process. Prior to filing the applications, the PATH team held nearly 25 public open meetings in communities, met with a myriad of state, federal and local agencies and gathered more than 5,000 public comments on potential siting issues. The team is committed to working with landowners, neighboring residents, business owners and regulators to balance all interests in an effort to minimize environmental and land use impacts.

Learn more about the PATH and TrAIL projects at www.pathtransmission.com and www.aptrailinfo.com. ■

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